

What is claimed is:

1. An apparatus for use with a vessel having a rotatable shaft therethrough, the apparatus comprising:
 - a collar disposed on the shaft wherein said collar rotates with the shaft;
 - a housing having an inward protrusion;
 - at least one first hydraulic nut mounted on the housing; and
 - a first moveable element connected to the at least one first hydraulic nut so that the first moveable element is axially moveable between an operating and shutoff position,
wherein the first moveable element contacts both the collar and the inward protrusion when the first moveable element is in the shutoff position.
2. An apparatus according to claim 1, wherein the first moveable element contacts the collar and the inward protrusion to form a seal when the first moveable element is in the shutoff position.
3. An apparatus according to claim 2, further comprising a plurality of sealing elements for sealingly engaging the first moveable element to the collar and inward protrusion when the first moveable element is in the shutoff position.
4. An apparatus according to claim 3, wherein the sealing elements are O-rings.

5. An apparatus according to claim 1, wherein the housing further comprises:

a lower portion;

a middle portion; and

an upper portion,

wherein the lower portion is affixed to the middle portion, the middle portion is affixed to the upper portion and the upper portion is affixed to the vessel.

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6. An apparatus according to claim 1, further comprising:

at least one second hydraulic nut mounted on the housing; and

a second moveable element connected to the at least one second hydraulic nut so that the second moveable element is axially moveable between an operating and shutoff position,

wherein the first moveable element, connected to the at least one first hydraulic nut, faces a first side of the inward protrusion and collar; the second moveable element, connected to the at least one second hydraulic nut, faces a second side of the inward protrusion and collar; and the second moveable element contacts the second side of both the collar and the inward protrusion when the second moveable element is in the shutoff position.

7. An apparatus according to claim 6, wherein the first moveable element sealingly contacts the first side of both the collar and the inward protrusion and the second moveable element sealingly contacts the second side of both the collar and inward protrusion when the first and second moveable element are in the shutoff

position.

8. An apparatus according to claim 7, wherein the distance between the first moveable element and the collar ranges from about 0.06" to about 0.19" and the distance between the second moveable element and the collar ranges from about 0.06" to about 0.19" when the first and second moveable elements are in the operating position.

9. An apparatus according to claim 8, wherein the distance between the first moveable element and the collar is about 0.125" and the distance between the second moveable element and the collar is about 0.125" when the first and second moveable elements are in the operating position.

10. An apparatus according to claim 6, further comprising a biasing means connected to the moveable elements, wherein the biasing means extends between the moveable elements.

11. An apparatus according to claim 1, wherein the collar is integral with the shaft.

12. An apparatus according to claim 1, wherein the collar is attached to the shaft by an attaching means.

13. An apparatus according to claim 8, wherein the attaching means is weld fabrication and/or set screws.

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14. An apparatus according to claim 6, further comprising a plurality of sealing elements for sealingly engaging the first and second moveable elements to the collar and inward protrusion when the first and second moveable elements are in the shutoff position.

15. An apparatus according to claim 10, wherein the sealing elements are O-rings.

16. An apparatus according to claim 6, further comprising a pressure tap for monitoring the function of the hydraulic nuts, wherein the pressure tap comprises a pressure gauge and a release valve.

17. An apparatus according to claim 6, further comprising a floating flushing bushing.

18. An apparatus according to claim 17, wherein the floating flushing bushing is positioned a distance away from the shaft ranging from about 0.001" to about 0.003"

1

19. A mixing apparatus for mixing and processing materials comprising:
a mixing vessel configured for receiving material to be mixed;
a motor;
a rotatable shaft extending from the motor and into the mixing vessel;

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a sealing element for providing a primary sealing engagement between the vessel and the rotatable shaft; and

a seal shutoff apparatus having an operating and shutoff position, wherein the seal shutoff apparatus provides a secondary seal between the vessel and the rotatable shaft when in the shutoff position, the seal shutoff apparatus comprising a housing having an inward protrusion, the housing being attached to the vessel; at least one hydraulic nut mounted to the housing; at least one moveable element attached to the at least one hydraulic nut; and a collar disposed on the shaft which rotates with the shaft and protruding into the housing.

20. A mixing apparatus according to claim 19, wherein the seal shutoff apparatus further comprises a floating flushing bushing.

21. A method for providing a sealing engagement between a vessel and a rotatable shaft comprising:

providing a seal shaft shutoff apparatus having a collar disposed on the shaft, a housing having an inward protrusion, a first hydraulic nut mounted on the housing, and a first moveable element connected to the first hydraulic nut; and

actuating the first hydraulic nut, thereby displacing the first moveable element to contact both the collar and the inward protrusion to form a seal.

22. A method for providing a sealing engagement between a vessel and a rotatable shaft comprising:

providing a seal shaft shutoff apparatus having a collar disposed on the shaft, a

housing having an inward protrusion, at least one first hydraulic nut mounted on the housing, a first moveable element connected to the first hydraulic nut, at least one second hydraulic nut mounted on the housing, a second moveable element connected to the second hydraulic nut;

actuating the at least one first hydraulic nut, thereby displacing the first moveable element to contact a first side of both the collar and the inward protrusion to form a seal; and

actuating the at least one second hydraulic nut, thereby displacing the second moveable element to contact a second side of both the collar and the inward protrusion to form a seal.

23. A seal shaft shutoff apparatus for providing reversible sealing engagement between a vessel and a rotatable shaft, the apparatus comprising:

a first stationary sealing means disposed on the shaft, wherein the first stationary sealing means rotates with the shaft;

a second stationary sealing means disposed within a housing; and

a first moveable sealing means connected to a first actuation means for axially displacing the first movable sealing means to sealingly contact both the first stationary sealing means and the second stationary sealing means to form a seal, wherein the actuating means is mounted in the housing.

24. A seal shaft shutoff apparatus according to claim 23, further comprising a second moveable sealing means connected to a second actuating means for axially displacing the second moveable sealing means to sealingly contact both the

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first stationary sealing means and the second stationary sealing means to form a seal,
wherein the actuating means is mounted on the housing.